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CURRENT SUPPORT BRIEF

THE BRATSK HYDROELECTRIC POWERPLANT GOES INTO OPERATION

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THE BRATSK HYDROELECTRIC POWERPLANT GOES INTO OPERATION

On 28 November 1961 Premier Khrushchev turned the switch that enabled the Bratsk Hydroelectric Powerplant (GES) to produce its first power for public supply. 1/ Upon its completion in 1963 the Bratsk GES, on the Angara River in Irkutskaya Oblast of the USSR, will be the largest powerplant in the world in both total capacity and production with a final installed capacity of 4,500 megawatts (mw) in 20 hydrogenerators rated at 225 mw each. These will be the largest hydrogenerators ever installed. Plans call for the first four units to be in by the end of 1961.

The rush to complete the Bratsk GES on schedule apparently stems from priority needs of the Soviet nuclear materials program. A study of the electric power requirements for regions joined to the GES by high tension lines shows that in 1965 approximately 65 percent of the power produced at Bratsk will be transmitted to a large 500 kilovolt (kv) substation near Angarsk that serves a probable gaseous diffusion plant. 2/ The Bratsk GES will also be one of the most important sources of power for an extensive 500 kv transmission network under construction in East Siberia which will be part of the future Central Siberian Unified Power Network. 3/

The Bratsk GES is the first of a series of large hydroelectric powerplants to be built at choice sites in Siberia which comprises the heart of hydroelectric powerplant construction in the Twenty Year Program of the CPSU. The Bratsk project, when compared with the Kuybyshev and Volgograd (formerly Stalingrad) projects on the flood plain of the Volga River, presents a striking example of the investment advantages of gorge dam construction. The Bratsk GES, because of its excellent site, will have almost twice the capacity of the two largest hydroelectric power plants now in operation in the USSR but will cost significantly less. (See Chart)

	Capacity (Mega- watts)	Total Cost (Million Rubles)	Cost of Capacity (Rubles Per Kilowatt)	Volume of Concrete (Mil. Cubic Meters)	Volume of Earthwork (Mil. Cubic Meters)
Kuybyshev GES	2,300	1,170	510	6.9	143
Volgograd GES	2,530	920	360	5.6	144
Bratsk GES	4,500	630	140	4.9	42

The Bratsk GES, as originally planned, did not take full advantage of its site and would have cost about 910 million rubles. As a result of a reassessment, probably due to the longstanding hydroelectric vs thermal power controversy, major design changes took place which significantly cut the volume of construction, decreased the term of construction by two years, and lowered the investment cost by about 280 million rubles 4/ to 630 million rubles. 5/ This cost includes the dam, equipment, ancillary structures, clearing the reservoir, worker housing, access railroads, and a 220 kilovolt high tension line from Irkutsk.

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Construction work on the dam structure will probably be completed by the end of 1963--about the same time that the last hydro-generators are installed. The dam has now reached a height of 60 meters, 6/ one-half the design height. Its completion will necessitate the pouring of an additional 1.8 million cubic meters of concrete. 7/ The period of basic construction will take about nine years (1955-63). Several more years of finishing work probably will be needed before final commissioning. The number of construction workers at the site has increased from 12,000 in 1956 8/ to 40,000 in 1961. 9/

Situated in a sparsely settled region where support facilities were virtually nonexistent, the Bratsk project has been kept on schedule at the expense of other nearby industrial sites originally planned for simultaneous development. For example, officials at the Korshunikhha iron mining and concentrating combine have complained that the construction of the Bratsk GES was taking manpower and materials from that combine, setting its construction schedule behind more than a year. 10/ A similar situation has existed with regard to the paper-cellulose combine under construction nearby. 11/ In addition, a thermal powerplant in the district is more than a year behind schedule, and completion of housing for workers in the first seven months in 1961 reached only 28 percent of the target. 12/ Confirmation of the slowdown in nearby industrial development was provided by Khrushchev, who stated that there would be no local consumers for the initial output of the Bratsk GES. 13/ The significance of the slowdown in industrial development, however, lies not so much in the lack of consumers (the iron mining combine and the paper combine could use only a fraction of the output of Bratsk GES) as in pointing up the difficulty of supplying a number of major construction projects in a relatively underdeveloped region. Because most of the large Soviet hydroelectric powerplants planned for the future will be constructed under conditions similar to Bratsk, it is possible that they too will strain the manpower and material resources of lesser priority industries, causing a subsequent unevenness of industrial development in the region concerned.

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Analyst:

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